

What is Claimed is:

1. An analysis system for a dyebath comprising:
 - (a) a sample cell;
 - (b) means for drawing a dyebath sample from a dyebath to the sample cell;
 - (c) a light source for directing light at the sample cell; and
 - (d) a detector for detecting light from the sample cell.
2. The analysis system for a dyebath according to Claim 1, wherein the sample cell is flow cell.
3. The analysis system for a dyebath according to Claim 2, where the flow cell is a dual flow cell.
4. The analysis system for a dyebath according to Claim 2, wherein the flow cell is a single flow cell.
5. The analysis system for a dyebath according to Claim 1, where the detector for detecting light from the sample cell is a device for measuring light absorbance.
6. The analysis system for a dyebath according to Claim 5, wherein the detector measures light absorbance over multiple light wavelengths.
7. The analysis system for a dyebath according to Claim 1, further comprising means for delivering a reference solution to the sample cell.
8. The analysis system for a dyebath according to Claim 7, wherein the means for delivering a reference solution to the sample cell is capable of delivering a reference solution to the sample cell simultaneously with the drawing of a dyebath sample to the sample cell.
9. A method for analyzing the dye concentration in a dyebath sample, comprising the steps of:
 - (a) drawing a dyebath sample from a dyebath;
 - (b) measuring light absorbance of the dyebath sample at at least one wavelength;
 - (c) measuring light absorbance of the non-dye components of the dyebath at the same wavelength; and

(d) using the measured light absorbance of the dyebath sample and the non-dye components of the dyebath to calculate the concentration of the dye in the dyebath.

10. The method of Claim 9, wherein the light absorbance is measured at a plurality of wavelengths.

11. The method of Claim 9, further comprising:

(e) calculating a make up dye concentration of the one or more dyes in the dye bath based on the calculation of the dye concentration in the dyebath.

12. The method of Claim 11, wherein the dye concentration is calculated according to Beer's Law.

13. A method of analyzing the dye components of spent dyebath of a dyeing process, comprising the steps of:

(a) preparing a reference sample of the dyebath, having all the chemical components of the spent dyebath except for dye components;

(b) obtaining a spent dyebath sample;

(c) passing the reference sample and the dyebath sample through a flow cell;

(d) directing light to the flow cell; and

(e) comparing the light absorbance of the light to the flow cell for each of the reference sample and the spent dyebath sample.

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